Controller Interface
Model CI-2000

Operating Instructions

STOCK NO. 990-60420-9802

GEOTECH INSTRUMENTS, LLC

CONTROLLER INTERFACE
MODEL CI-2000

OPERATING INSTRUCTIONS

GEOTECH INSTRUMENTS, LLC

Document History

Date	ECN	Rev	Initials	Description
05/12/02	ER050201	-	dmk	Initial Release
12/12/02	ER048874	A	dwm	Updated to include KS2000M mass centering procedure.

Table of Contents

(Intentional Blank Page)

List of Tables

(Intentional Blank Page)

Typographic Conventions

When you see text like	This is what it means
`\dir\dir\filename.ext`	Data file name and extension with or without directory location included
`\dir\dir\FILENAME.EXT`	Executable file name and extension with or without the directory location included entered on the command line
`{augument}` `{choice1 | choice2}`	Text inside braces is a REQUIRED command line argument, typed in as shown but with out braces. Vertical bar means a choice between two or more REQUIRED items in command line argument.
`[augument]` `[choice1 | choice2]`	Text inside brackets are optional command line argument, typed in as shown but with out brackets. Vertical bar means a choice between two or more optional items in command line argument.
CAPITALIZED TEXT	Connection, Controls, and/or Indicators
CAPITALIZED ITALIC TEXT	*CONTROL SELECT POSITION*
Bold Text	Stress a word or words
Bold and Underlined text	**Highly stress** a word or words
CAPTITALIZED, BOLD, AND UNDEERLINED TEXT	Use **EXTREME CAUTION** when executing the procedure and/or command
KEY NAMES	Small capitals letters are used for keyboard key strokes A plus (+) indicates a combination of keys. Example: CRTL+C means hold down the CTRL key while pressing the C key.

`Displayed Screen Text`
`Next Line`
`. . .`
`Next to last . . .`
`Last line`
	Text as displayed and the screen.
	If 3 dots (. . .) appear on a line then part of the example was intentional omitted
	If 3 dots (. . .) appear at end of a line then part of that line was intentional omitted

(Intentional Blank Page)

1 PURPOSE OF INSTRUMENT

The Controller/Interface CI-2000 is used to assist in installing the KS2000 series of Broadband Seismometers. It may be used as a stand-alone device in conjunction with an external 12vdc power source to locally or remotely center the mass position of each individual channel and to calibrate all channels. It may also be left in line between the seismometer and the digitizer. Typically, power is supplied from the digitizer but also can be supplied by connecting +12 Vdc to the banana jacks labeled POWER. The digitizer should be connected to the IN connector and the seismometer is connected to the connection labeled OUT.

2 DESCRIPTION OF CONTROLS AND TERMINALS

2.1 POWER Terminals

These terminals are used to supply +12 VDC power to the seismometer or to monitor power when power is furnished from the digitizer via the IN – J1 connector.

2.2 CAL INPUT Terminals

Provides access for the user to provide an analog calibration signal to the seismometer, i.e. sine, pulse, etc.

2.3 CAL ENABLE Switch

This switch must be in *ON* position so that the calibration circuitry in the KS2000 can be activated. The CAL ENABLE switch provides the required ground connection to the calibration circuit in the seismometer. This switch enables the calibration circuit for all three channels, independent of the CHANNEL SELECT option.

2.4 CHANNEL SELECT Switch

Connects the selected seismometer channel to the OUTPUT terminals for monitoring with oscilloscope or recorder. This is a differential output.

2.5 OUTPUT Terminals

Terminals used to monitor the Vertical, North, and East output channels. Controlled by the CHANNEL SELECT switch. This is a differential output.

2.6 MASS MONITOR Switch

This switch is used to select the channel that requires its mass position to be monitored. The KS2000 mass position can be monitored either by observing the deflection on the VOLTMETER or by measuring the voltage between the MASS MONITOR terminals.

2.7 MASS CENTERING / INITIATE Switch

When toggled in either direction, this switch initiates mass centering of Vertical, North, and East channels for the KS2000M. This switch is non-functional when used with the non-motorized KS2000.

2.8 OUT – J2 SEISMOMETER Connector

Used to connect the seismometer to the CI-2000 interface. The cable that furnished is symmetrical and either end will connect to the KS2000 seismometer or to the CI-2000 Controller.

2.9 IN – J1 Connector

Used to connect the CI-2000 controller to a recorder or digitizer. See Table 4-1 on page 3 for pin out information. Also see KS2000 manual for details on set-up and connection of the seismometer.

3 INSTRUCTIONS FOR MASS CENTERING

The KS2000M (motorized) seismometer may be centered by toggling the MASS CENTERING / INITIATE switch in either direction after leveling. The KS2000 (non-motorized) seismometer may require fine mass centering adjustments even after the seismometer has been leveled.

An acceptable channel offset for the KS2000 or KS2000M is 100 mV. This offset can be measured directly using the MASS MONITOR banana jacks and a voltmeter or by observing the amount of deflection of the VOLTMETER on the CI-2000 controller. If the meter's armature needle is within the large black 0 mark, then the mass position is within acceptable levels. If the needle's deflection is beyond the 0 mark then mass position adjustments or re-leveling of the seismometer may be required. Adjusting the leveling feet will change the mass position of the two horizontal components and should be considered first. If leveling is unsuccessful or the vertical component is out of tolerance proceed with mass position adjustments. Note: The seismometer may require a day of thermal stabilization to determine its true mass position.

To adjust: connect the seismometer to the CI-2000 Controller with the cable furnished with unit. Apply 12 VDC power to POWER terminals.

! ! ! WARNING ! ! !

If power is being furnished by the digitizer via the IN-J1 connector *DO NOT* connect power to the POWER terminals.

Switch MASS MONITOR switch to *E*, *N*, or *V* and monitor the seismometer's mass position with the panel meter or an external meter connected to the MASS MONITOR terminals. Center mass position as described in KS2000 manual. Set switch to *OFF* when complete.

4 INSTRUCTIONS FOR CALIBRATION

To supply a calibration signal to the seismometer:

Connect a signal to the CAL INPUT terminals. Set the CAL ENABLE switch to *ON*. The calibration signal will be applied to all channels. When complete, remove the cal signal and set the CAL ENABLE switch to the *OFF* position. If the digitizer supplies the calibration signal, the CAL ENABLE must also be switched to the ON position and to the OFF position when the calibration has stopped.

Table 4-1 IN and OUT Connector Pin Outs

OUT Connector To Seismometer	Signal Name	IN Connector To Customer Equipment
J2-G	V+	J1-G
J2-X	V-	J1-X
J2-N	N+	J1-N
J2-c	N-	J1-c
J2-B	E+	J1-B
J2-U	E-	J1-U
J2-H	VCAL-	J1-H
J2-Y	VCAL+	J1-Y
J2-P	NCAL-	J1-P
J2-d	NCAL+	J1-d
J2-C	ECAL-	J1-C
J2-V	ECAL+	J1-V
	SHIELD	
J2-R	SHIELD	J1-R
	SHIELD	
J2-J	VCALEN	J1-J
J2-S	NCALEN	J1-S
J2-E	ECALEN	J1-E
J2-F	VEM-	J1-F
J2-W	VEM+	J1-W
J2-M	NEM-	J1-M
J2-b	NEM+	J1-b
J2-A	EEM-	J1-A
J2-T	EEM+	J1-T
J2-K		
J2-L		
J2-a		
J2-g	CENTER ENABLE	
J2-e	12VDC	J1-e
J2-f	12COM	J1-f

(Intentional Blank Page)

GEOTECH INSTRUMENTS, LLC

10755 Sanden Drive, Dallas, Texas 75238-1336
VOICE: (214) 221-0000 FAX: (214) 343-4400
WEB: http://www.geoinstr.com